

# **Current Transducer HX 03..50-P/SP2**

For the electronic measurement of currents: DC, AC, pulsed, mixed, with galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).





**Electrical data** 

Primary nominal

 $I_{PN}(A)$ 

3

5

10

15

20

25

50

current rms



Primary current

 $I_{PM}(A)$ 

±9

± 15

± 30

± 45

± 60

± 75

± 150

measuring range1)



Primary conductor

diameter x turns

(mm)

0.6d x 20T

0.8d x 12T

1.1d x 6T

1.4d x 4T

1.6d x 3T

1.6d x 2T

1.2 x 6.3 x 1T

All data are given with  $\mathbf{R}_{1}$  = 2 k $\Omega$ 

Type

HX 03-P/SP2

HX 05-P/SP2

HX 10-P/SP2

HX 15-P/SP2

HX 20-P/SP2

HX 25-P/SP2

HX 50-P/SP2

# $I_{PN} = 3 ... 50 A$



#### **Features**

- Galvanic isolation between primary and secondary circuit
- Hall effect measuring principle
- Isolation voltage 3000V
- Low power consumption
- Extended measuring range (3 x
   I<sub>PN</sub>)
- Isolated plastic case recognized according to UL 94-V0.

### **Special features**

• Single supply from +12V to + 15V

#### **Advantages**

- Low insertion losses
- Easy to mount with automatic handling system
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference

#### **Applications**

- Switched Mode Power Supplies (SMPS)
- AC variable speed drives
- Uninterruptible Power Supplies (UPS)
- Electrical appliances
- · Battery supplied applications
- DC motor drives

#### **Application domain**

Industrial.

# $V_{OUT}$ Output voltage (Anarog) @ $\pm I_{PN}$ , $R_L = 2 \text{ k}\Omega$ , $T_A = 25 \text{ °C V}_{CE} \pm 0.625$

$R_{OUT}$	Output internal resistance	< 50	Ω
R,	Load resistance	≥ 2	$k\Omega$
<b>V</b> _C	Supply voltage (± 5 %)	+ 12 15	V
<b>V</b> <sub>C</sub>	Current consumption	< 15	mΑ

## Accuracy - Dynamic performance data

X	Accuracy @ $I_{PN}$ , $T_A = 25^{\circ}C$ (xcluding offset)	< ± 1 %	% of I <sub>PN</sub>
$\mathcal{E}_{\scriptscriptstyle L}$	Linearity error $(0 \pm I_{PN})$	< ± 1 %	6 of I <sub>PN</sub>
<b>V</b> <sub>OE</sub>	Electorical offset voltage @ $I_P = 0$ , $T_A = 25$ °C	+ 2.5V ±	50 mV
<b>V</b> <sub>OH</sub>	Hysteresis offset voltage $@I_P = 0$		
	after an excursion of 1 x I <sub>PN</sub>	< ± 10	mV
TCV	Temperature coefficient of <b>V</b> <sub>OF</sub>	< ± 1.5	mV/K
TCV <sub>OH</sub>	Temerature coefficient of <b>V</b> <sub>OUT</sub> (% of reading)	± 0.1	%/K
t,	Response time to 90% of I <sub>PN</sub> step	≤ 3	μs
BW	Frequency bandwidth (- 3 dB) <sup>2)</sup>	50	kHz

#### **General data**

$\mathbf{T}_{A}$	Ambient operating temperature	- 25 + 85	°C
$T_{\rm s}$	Ambient storage temperature	- 25 + 85	$^{\circ}C$
m	Mass	8	g
	Standards	EN 50178: 1997	

Note: 1) With  $\mathbf{R}_1 = 2k\Omega$ 

<sup>2)</sup> Small signal only to avoid excssive heating of the magnetic cores.

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#### **Current Transducer HX 03..50-P/SP2**

Isolation characteristics			
$oldsymbol{V}_{d} \ oldsymbol{V}_{e} \ oldsymbol{\hat{V}}_{w}$	Rms voltage for AC isolation test, 50 Hz, 1 min Partial discharge extinction voltage rms @ 10 pC Impulse withstand voltage 1.2/50 µs	> 3 ≥ 1 ≥ 6	kV kV kV
dCp dCl CTl	Creepage distance Clearance distance Comparative Tracking Index (group I)	≥ 5.5 ≥ 5.5 ≥ 600	mm mm

# **Applications examples**

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- · Non-uniform field

	EN 50178	IEC 61010-1
dCp, dCl, $\hat{V}_w$	Rated insulation voltage	Nominal voltage
Basic insulation	600 V	600 V
Reinforced insulation	300 V	150 V

#### **Safety**



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

Ignoring this warning can lead to injury and/or cause serious damage.

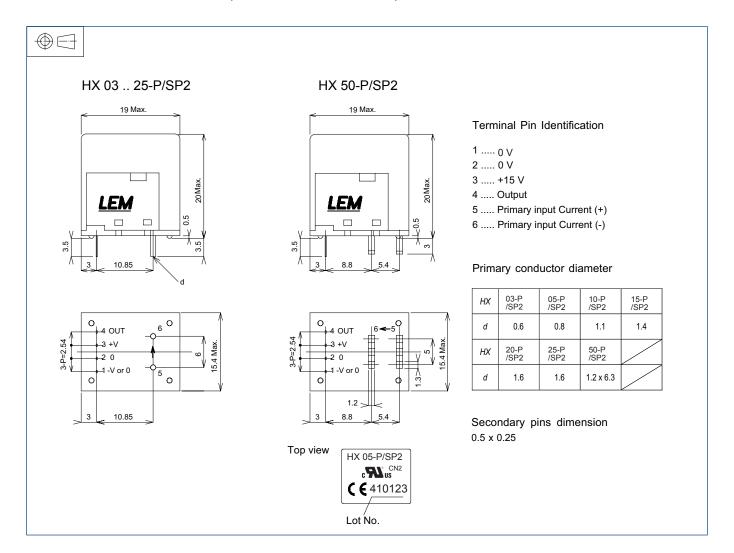
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.

A protective housing or additional shield could be used.

Main supply must be able to be disconnected.



## **Dimensions HX 03..50-P/SP2** (in mm. 1 mm = 0.0394 inch)



### **Mechanical characteristics**

General tolerance ± 0.5 mm